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EXAMINER	
TSOY, ELENA	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/809,017	HUISMAN, JAN WIETZE	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2004* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *48-85* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *48-85* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *1* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Preliminary Amendment

Preliminary Amendment filed on March 25, 2004, 2003 has been entered. Claims 1-47 have been cancelled. New claims 48-85 have been added. Claims 48-85 are pending in the application.

Specification

1. An abstract on a separate sheet filed on June 25, 2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 48-68, 70, 75-81** are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al (US 5,863,772) in view of Mueller (US 4,098,742) and Keeler (US 4,172,064).

As to claims 1-3, Andersen et al disclose a method for manufacturing coated products comprising forming a base product from a mass containing starch as a natural polymer in a heated mold cavity including molds typically used in conventional injection molding processes (See column 16, lines 50-53) such that cross-linkage of the natural polymer occurs (See column 56, lines 12-21), and applying coatings to the surface of the formed base product (See column 64, lines 60-67; column 65, lines 1-8) to achieve a uniform film with minimal defects on the surface of the article (See column 65, lines 9-11). Andersen et al further teach that some coatings may also be used to strengthen **places** where the articles are severely bent. A waterproof coating

is desirable for articles intended to be in contact with water. See column 66, lines 25-38. However, Andersen et al does not expressly show that a strengthening coating (a second coating) is applied over a waterproof coating (a first coating) so that the base product is coated with a first coating upon relevant parts of the base product, and a second coating over at least a portion of the first coating.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have coated a base product in Andersen et al by applying a waterproof coating (a first coating) over portions of the base product intended to be in contact with water, then applying a strengthening coating (a second coating) over the waterproof coating in places where the base product would be severely bent with the expectation of making a waterproof base product containing places which can be severely bent.

Moreover, it is well-known principle to reapply a coating composition (i.e. to achieve a desired thickness of a final coating depending on intended use of the final coated product. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have reapplied a coating composition in Andersen et al according to well-known principle, with the expectation of providing the desired thickness of a final coating depending on intended use of the final coated product, in the absence of a showing of criticality.

Andersen et al fail to teach that the first coating has a surface tension which is approximately equal to or lower than a surface tension of the surface of the base product.

Andersen et al further teach that selection of a particular coating process depends on a number of substrate (i.e., article) variables such as *wettability*, porosity, etc., as well as coating

formulation variables including total solids content, solvent base, *surface tension*, and rheology (See column 65, lines 11-17).

Mueller teaches that a coating formulation having surface tension higher than that of a substrate does not wet the substrate (See column 1, lines 35-45). Keeler teaches that the surface tension of coating formulations can be reduced by incorporating surface tension-reducing agents (See column 2, lines 29-42).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formulated a composition for a first coating in Andersen et al with the use of surface tension-reducing agents so that a surface tension of the first coating composition is approximately equal to or lower than a surface tension of the surface of a base product with the expectation of providing the desired uniform coating with minimal defects since Mueller teaches that a coating formulation having surface tension higher than that of a substrate does not wet the substrate and Keeler teaches that the surface tension of coating formulations can be reduced by incorporating surface tension-reducing agents.

As to claim 51, Andersen et al further teach that a starch-based mass can be used as a substitute for a conventional paper-forming mass because the starch-based mass yields containers and other articles of a similar cross-section having comparable critical mechanical properties comparable to those made from the conventional paper-forming mass (See column 6, lines 5-10). In other words, a molded product in Andersen et al can also be made from a conventional paper-forming mass.

The Examiner Note: the meaning of a phrase "at least one mass is at least substantially manufactured as paper-forming mass" is not clear: whether mass is manufactured using a paper-

making method or mass is formed from the same components as paper-forming mass. After reviewing the specification as a whole, the Examiner interpreted the claim as relating to a mass, which is formed substantially from the same components as paper-forming mass.

As to claim 52, mold release agents such as silicones, waxes in an amount 0.05-15% by weight of the total solids (See column 53, lines 51-56, 66-67) are incorporated into the mass to improve the release of the molded product from the mold (See column 16, lines 27-30). It is the Examiner's position that silicone release agents would function substantially identically as those of claimed invention because the range covers the 0.2 wt % which according to the specification silicones added in amount of 0.2 wt % to the mass which is identical to the mass of the claimed invention and molded in a heated mold provides claimed functions (See specification, page 5, lines 1-5).

As to claim 53, Andersen et al further teach that he mass further contains mold releasing agents such as stearates (See column 53, lines 26-28), silicones and waxes (See column 53, lines 51-56). The Examiner Note: it is well known in the art that stearates, silicones and waxes have surface tension reducing properties.

As to claims 54, 55, Andersen et al fail to teach that a mass after molding (before coating) has a surface tension of less than 44 dyne/cm (Claim 7) and greater than 30 dyne/cm while a water-based coating has a surface tension of less than 40-27 dyne/cm (Claim 8).

As well known in the art, the mass surface tension is result-effective variable: the less surface tension of a mass the easier release from the mold, but more difficult to coat. As was discussed above, a surface tension of coating is also a result-effective parameter in a coating process.

It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant surface tension parameters (including those of claims 7, 8) through routine experimentation in the absence of a showing of criticality.

As to claim 57, the mass, upon leaving the mold has moisture content of less than 3 wt % (See column 70, lines 6-29) while water is introduced into the molded mass by coating (See column 66, lines 63-67).

As to claim 58, Andersen et al further teach that a water-based system may be used for coatings (See column 66, lines 56-65).

It is the Examiner's position that the water-based system is one-phase system because silicones or waxes are used in an amount as little as 0.05-0.2 wt %.

As to claim 59, Andersen et al further teach that a coating can be applied either to a hot product directly in the mold or at ambient temperature (See column 65, lines 33-45).

As to claims 60-64, one or more organic coating compositions (See column 66, lines 41-42) comprise *epoxy* resins, melamine, catalysts, acrylics, polyethylene, waxes, cellulose acetate, polylactic acid, polyvinyl alcohol or *mixtures* thereof (See column 65, lines 58-67; column 66, lines 1-24). It is well known in the art that *epoxy* resins contain reactive *epoxide* groups. In other words, the organic coating compositions comprise *epoxides* (cross-linker).

As to claim 65, one or more organic coatings provide barrier to moisture (increases water vapor proofness) (See column 66, line 18).

As to claim 66, FDA-approved coating is used for contact with foodstuffs (See column 66, lines 31-32).

As to claim 67, one or more organic coatings provide barrier to grease or oils (See column 66, line 19).

As to claim 68, as was discussed above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have covered some parts of a base product of Andersen et al with one coating only or keep them clear from coating and other parts with two coatings with the expectation of providing the desired surface characteristics of the coated product depending on intended use of a final product.

As to claim 70, a coating may be applied by spraying (See column 65, lines 18-21).

As to claims 75-80, Andersen et al further teach that when water is added with the coating or a water-based coating is used, an additional conditioning component is added to the formed product. The structural matrix of the product will absorb the water from the coating into the matrix to provide additional moisture thereto so that the product will be softened. The coating can also be flash dried on the surface and at the same time leave the moisture on the inside of the product for conditioning of the matrix a water-based coating. See column 66, lines 53-67; column 67, lines 1-3. Thus, water is an influencing agent acting as a softener, and water-based coating is relatively dense than water.

As to claim 81, waxes are incorporated into coating compositions to provide a barrier to moisture, oxygen and grease (See column 66, lines 17-20). It is well known in the art that waxes

have surface tension reducing properties and are used as surface reducing agents in coating compositions to provide reduced surface tension of a coated layer. Therefore, the waxes incorporated into coating compositions of Andersen et al would also provide reduced surface tension of a coated layer.

4. **Claim 69** is rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al (US 5,863,772) in view of Mueller (US 4,098,742) and Keeler (US 4,172,064), and further in view of Hargadon (US 3,601,862).

Andersen et al further teach that different products can be made using different masses depending on intended use of a final product (See column 28, lines 40-54).

Andersen et al/in view of Mueller and Keeler fail to teach that the base product is made from at least two different masses preferably having different surface tensions.

Hargadon teach that using a product having integrally joined parts of different characteristics, e.g., flexible and rigid parts can be by injection-molding procedure using different masses (See column 2, lines 39-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used different masses for making different parts in injection-molding procedure of Andersen et al in view of Mueller and Keeler with the expectation of producing a molded product with integrally joined parts having desired different characteristics depending on intended use of a final product, as taught by Hargadon.

5. **Claims 71, 72** are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al (US 5,863,772) in view of Mueller (US 4,098,742) and Keeler (US 4,172,064), and further in view of Ito (US 3,659,787).

Andersen et al , as applied above, further teach that the one or more coatings can be applied using any conventional coating means known in the art of manufacturing paper including blade, air-knife, dipping and spraying (See column 65, lines 20-33). However, Andersen et al/in view of Mueller and Keeler, do not expressly show that the known coating means include atomizing (Claim 23) or airless spraying or atomizing (Claim 24).

Ito teaches that the airless apparatus which atomizes and sprays coating material has advantages over several other techniques of depositing the coating material such as reducing the amount of coating material sprayed and being capable of projecting the coating material into the recesses of articles (See column 1, lines 1-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used airless apparatus which atomizes and sprays for coating a molded product in Andersen et al in view of Mueller and Keeler with the expectation of providing the desired reduction of the amount of coating material sprayed and access into the recesses of the product, as taught by Ito.

6. **Claim 73** is rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al (US 5,863,772) in view of Mueller (US 4,098,742) and Keeler (US 4,172,064), and further in view of JP 07024367.

Andersen et al in view of Mueller and Keeler, as applied above, fail to teach that spraying is controlled by compressed air.

JP 07024367 teaches that coating of a narrow, small part of a material by spraying with compressed air-control prevents over spray while keeping maintaining a high coating quality (See Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used controlled spraying in Andersen et al in view of Mueller and Keeler with compressed air with the expectation of preventing over spray while keeping maintaining a high coating quality providing, as taught by JP 07024367.

7. **Claim 74** is rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al (US 5,863,772) in view of Mueller (US 4,098,742) and Keeler (US 4,172,064), and further in view of Petterson (US 3,896,602).

Andersen et al in view of Mueller and Keeler fail to teach that a molded product having a receiving cavity is coated by filling the cavity with a fluid coating and subsequently pouring out the coating.

Petterson teaches that a receiving cavity in a product can be coated by filling the cavity with a fluid coating and subsequently pouring out the coating (See claim 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have coated a product having a receiving cavity in Andersen et al in view of Mueller and Keeler by filling the cavity with a fluid coating and subsequently pouring out the coating with the expectation of providing the desired coated cavity, as taught by Petterson.

8. **Claims 82-85** are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al (US 5,863,772) in view of Mueller (US 4,098,742) and Keeler (US 4,172,064), and further in view of Rusincovitch, Jr. (US 5,304,411).

Andersen et al in view of Mueller and Keeler, as applied above, fail to teach that as surface reducing agents, oily product (Claim 34) such as silicone oil (Claim 35) in an amount of

0.5-15 vol. % (Claim 36) or 2-10 vol. % (Claim 37) are added to coating compositions to provide a reduction of the surface tension of the coating layer after drying.

Rusincovitch, Jr. teaches that surface tension reducing agent such as silicone oil added to ink composition provides surface tension reducing effect (See column 3, lines 15-25; column 5, lines 48-49, 68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added silicone oil as a surface reducing agent to a coating composition in Andersen et al in view of Mueller and Keeler with the expectation of providing the desired surface tension reducing effect, as taught by Rusincovitch, Jr.

As to the claimed amount of 0.5-15 vol. %, Rusincovitch, Jr. teaches that when the quantity of silicone oil of less 2.5 wt % (based on weight of total composition together with silicone oil) is insufficient to provide the desired surface reducing effect of an ink (coating) composition, if more than 5 wt%, the siliconized pattern becomes blurred (See column 6, lines 1-7), i.e. the concentration of silicone oil in a coating composition is a result-effective parameter, all other things being equal.

It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Also, it is held that concentration limitations are obvious absent a showing of criticality. Akzo v. E.I. du Pont de Nemours 1 USPQ 2d 1704 (Fed. Cir. 1987).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have discovered the optimum or workable ranges of concentration limitations

(including those of claims 36, 37) in Andersen et al in view of Mueller and Keeler by routine experimentation in the absence of showing criticality since general conditions are taught by Rusincovitch, Jr.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER
E Tsoy

December 9, 2004